

REMARKS

Claims 1-30 are pending in the application, and are rejected.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,520,992 to Douglas et al.

Referring to claims 1, 14-15 and 23, the Examiner asserts that Douglas et al. discloses that the dielectric layer comprises an HDCM represented by $Ba_xSr_yY_zTi_aO_b$. The Examiner characterizes the difference between the material of Douglas et al. and the claimed material as the difference in the various variables for the respective Ba, Sr, Y, Ti, and O components.

Applicants respectfully disagree with the rejection, because there does not appear to be a suggestion to change the dielectric layer of Douglas et al. to reach the present invention. Moreover, even if such a suggestion is seen to exist, the presently claimed narrow formulaic range provides unexpectedly superior results over that which might have been expected.

Applicants note that in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. (Manual of Patent Examining Procedure §2142). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure.

In the present case, the Examiner appears to have found a reference that suggests including the claimed elements in a dielectric layer. However, there is no reasonable suggestion to include the claimed elements in the amounts in the claimed formulae.

Applicants note that Douglas et al. merely teaches that a dielectric material may include barium strontium titanate, but does not teach or suggest the desirability of varying the amounts of each component, let alone teach or suggest the unexpected results associated with the narrow range of the presently claimed amounts.

The Examiner asserts that merely selecting specific combination through experimentation as claimed for the various combinations of the variables for the component materials – that eventually form a high dielectric constant material – is within the skill of a person of ordinary skill in the art, and therefore concludes that such selecting would be obvious and would not contribute to patentability.

Applicants respectfully disagree with the above assertion, because variance of the relative amounts of the components of the dielectric layer into the exact amounts claimed results from impermissible hindsight. Applicants submit that it would be highly unlikely that one would vary each of the elements of the dielectric layer and reach the invention without a suggestion of the desirability to do so.

In the present case, the claim recites that the dielectric layer includes a high dielectric constant material represented by $(\text{Ba}_{(1-y)(1-x)}\text{Sr}_{(1-y)x}\text{Y}_y)\text{Ti}_{1+z}\text{O}_{3+\delta}$, wherein $0 < x < 1$, $0.007 < y < 0.02$, $-1 < \delta < 0.5$, and $(\text{Ba}_{(1-y)(1-x)} + \text{Sr}_{(1-y)x})/\text{Ti}_{1+z} < 1$.

The specification, in Figures 2-5 and 10, indicates the newly discovered results of testing for relative permittivity, capacitance density, leakage currents and voltage tunability associated

with various at% of Y in the above formula, for various values of (Ba+Sr)/Ti. As noted in the specification, the clearly superior results based on the above parameters are clearly achieved with the claimed formulae. Therefore, because there is seen no suggestion to vary the amounts of the components of the dielectric layer of Douglas et al., Applicants believe that the prima facie case of obviousness has not been established.

Referring to claims 2 and 24, the Examiner asserts that although Douglas et al. fails to specify a thickness of 1 to 300 nm as claimed for the dielectric layer, selecting a thickness for specific application is within the ability of a person of ordinary skill in the art, and therefore would have been obvious. Referring to claims 6-7, 19-20, 25 and 27, the Examiner asserts that although the cited reference fails to disclose a passivation insulating layer applied over the device comprising the substrate and the capacitor that includes the electrodes, such a passivation insulating layer is normally applied over the device to protect the device from the environment and as a means to form a contact for the device. Referring to claims 8-13, 16-18 and 26, the Examiner concludes that although Douglas et al. does not explicitly disclose that the conductive metal nitride or conductive metal oxide layer or the conductive metal nitride or conductive metal oxide layer is an adhesion layer, the conductive metal oxide layer 36 is an adhesion layer as is known in the art. Referring to claims 21 and 22, the Examiner asserts that although Douglas et al. fails to disclose a specific application connection of series or parallel connection for the capacitor structure, series or parallel connection for the capacitor structure for various specific uses is within the ability of a person of ordinary skill in the art and therefore would have been obvious.

Applicants submit that the above rejections of dependent claims 2-30 do not require further traverse, because the claims are all dependent from claim 1 and necessarily include at

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Response under 37 C.F.R. §1.111

least its limitations. Because the rejection of claim 1 is apparently improper as noted above, Applicants submit that the rejection of the dependent claims is similarly improper.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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